The Effect of Bank Supervision on Risk Taking: Evidence from a Natural Experiment

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Motivation

- Financial institutions are subject to an inordinate amount of supervisory oversight
- Despite this focus on supervision, crises emanating from the financial sector are recurring phenomena
  - Inadequate supervision often blamed
- Raises some questions:
  - How effective is supervision over and above regulations?
  - Can supervisors protect the nonfinancial sector and taxpayers from losses?

Research Questions

1. Do changes in supervisory resources alter risk taking behavior of financial institutions?
2. Can bank supervision affect the prevalence and costs of bank failures?
    - Through which channels?

Familiar endogeneity issues:

- Changes in supervision tied to differences between banks or operating environments
- Difficult to disentangle effects of regulation

Background: Regulatory and Supervisory Environment

- We focus on federally chartered S&Ls in the 1980s
- Primary regulator: FHLBB (subject to same regulations)
- Supervisory oversight: purview of regional FHLBs (PSA)
    - Supervisors: FHLB employees, reported to local president

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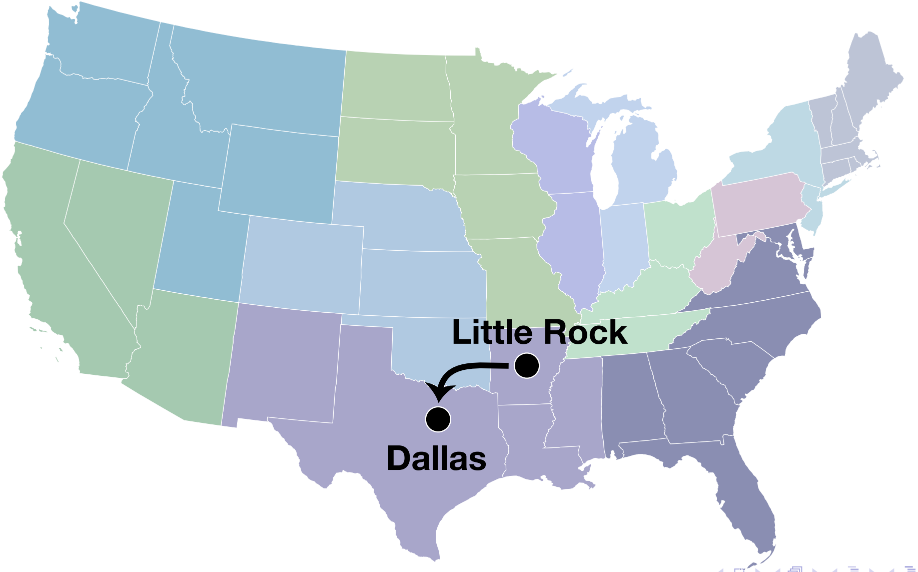
- Texas attempted to secure relocation as early as the 1950s
- Weakening of Arkansas congressional delegation led to successful relocation vote in 1983
- Directed to move **to Dallas** "as rapidly as possible"

Natural Experiment: Relocation of the 9th District HQ



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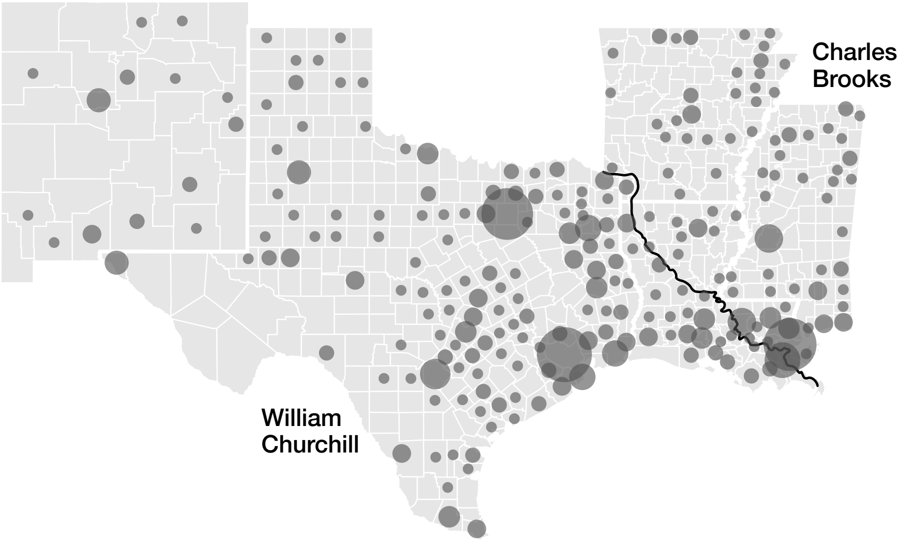
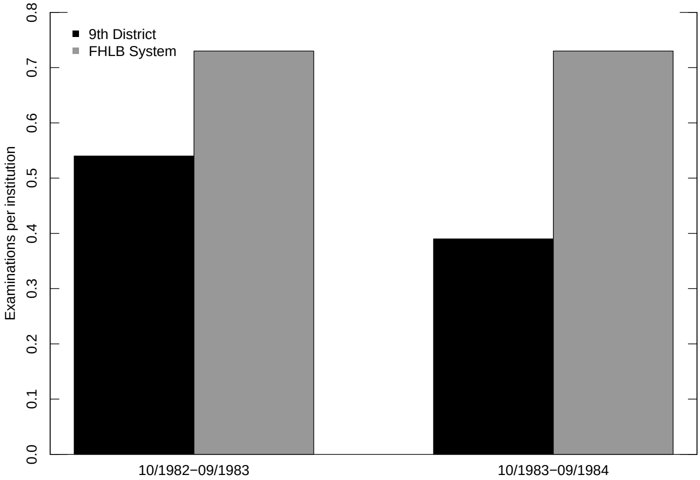
- All but 11 employees quit (including the chief). Only 2 were field agents, remainder were clerical/admin staff
- Restaffing effort was slow; in 1986, chairman of FHLBB brought in 250 supervisory and examination staff from other districts for six-week blitz

Field Agents' Division of ≈500 S&Ls



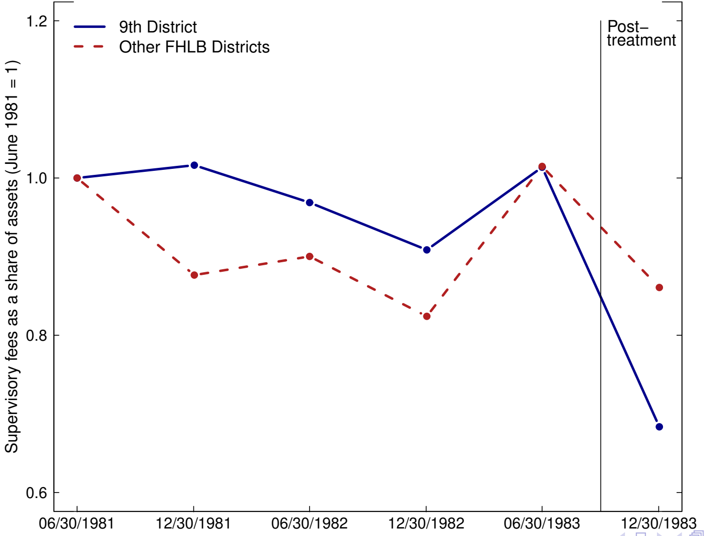
Examination Intensity: Examinations per Institution



Trainee Examiners in Selected FHLB Districts (1984)

	Trainee Examiners
4th district, Atlanta	27%
7th district, Chicago	22%
9th district, Dallas	**43%**
10th district, Topeka	19%
All FHLB districts	22%

Supervisory Fees Paid by S&Ls



Data

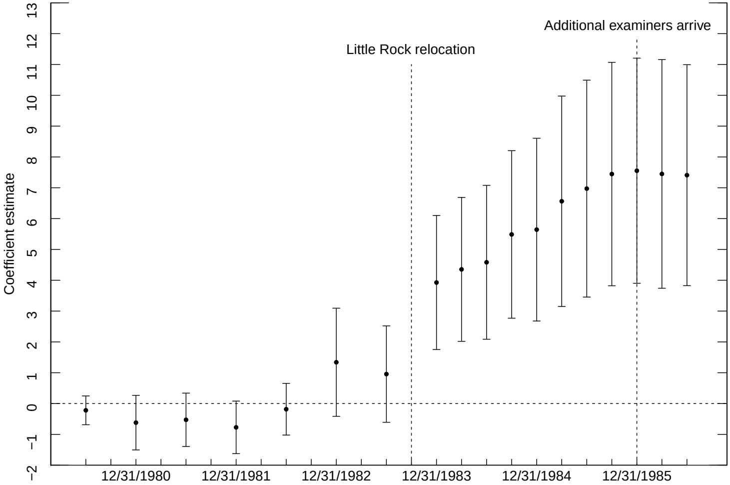
- Federally chartered S&Ls in contiguous U.S.
    - Thrift Financial Reports (TFR)
    - Key measure of risk: "Higher risk real estate investments"
        - CRE, ADC, service corp. investments
- County and state-level characteristics
    - Census, BEA, BLS
- Failure Transaction Database (FTDB) from the FDIC

Methodology: Difference-in-Differences

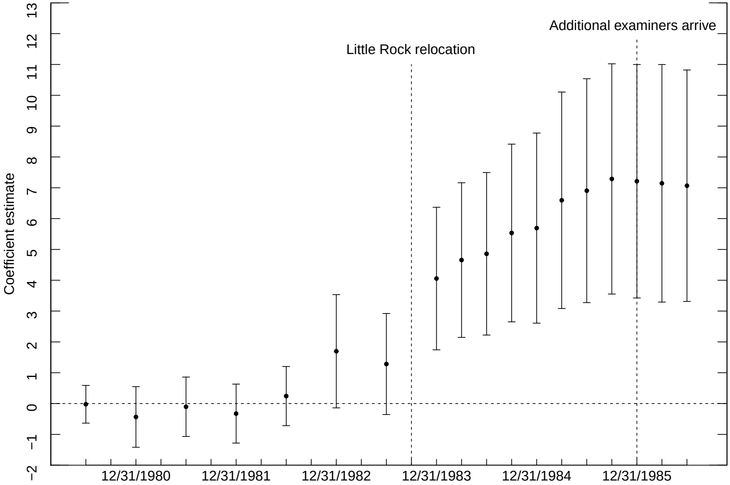
- Standard DiD specification: 9th district thrifts compose the treatment group:

$$Y_{i,t} = \alpha + \eta_t + \psi_i + \gamma(Post_t \times Treatment_i) + \phi'(Post_t \times \boldsymbol{B_{i,1982}}) + \boldsymbol{\zeta' S_{i,t-1}} + \boldsymbol{\theta' C_{i,t-1}} + \varepsilon_{i,t}$$

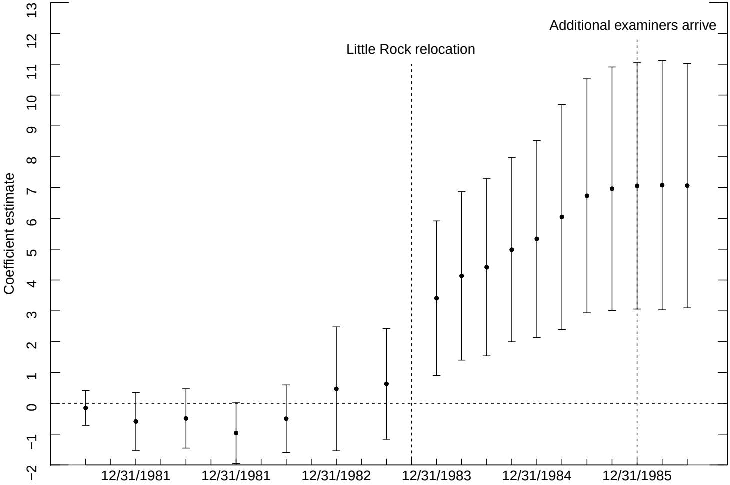
9th District vs. Other Districts (Risky Assets, % of Bal Sheet)



9th District vs. 4th District (Risky Assets, % of Bal Sheet)



9th District vs. Matched Thrifts (Risky Assets, % of Bal Sheet)



Robustness Checks: Oil Boom/Bust

- The 9th district was more reliant on oil extraction than other districts on average

  1. Variation within 9th district states: AR had a mining share of GSP of $< 2\%$
     - ★ Compare with bordering Missouri (also no oil economy)
  2. Compare with other oil dependent states
     - ★ Hamilton and Owyang (2012): KS, MT, ND, OK, WY

Robustness Checks

Panel A: Arkansas (9th District) vs Missouri (8th District)				
	(1)	(2)	(3)	(4)
Post × *Treatment*	9.13***	4.75**	4.72**	5.00**
	(1.98)	(1.97)	(1.97)	(2.07)
N	543	543	543	543
Adj. R^2	0.79	0.80	0.81	0.81

Panel B: 9th District vs Oil States				
	(1)	(2)	(3)	(4)
Post × *Treatment*	3.01***	4.10**	3.81*	2.94*
	(1.06)	(1.86)	(2.04)	(1.60)
N	2,720	2,720	2,720	2,720
Adj. R^2	0.65	0.66	0.66	0.68
State-level controls	–	✓	✓	✓
County-level controls	–	–	✓	✓
Bank-level controls	–	–	–	✓

Results are not driven by:

- Oil shocks
- Texas thrifts
- Region-specific capital shock

Placebo Tests

- Placebo tests using matched **commercial banks** that look like S&Ls
  - **Same** local lending environment
  - **Same** ability to invest in higher risk real estate loans
  - **Different supervisor**

Panel D: 9th district commercial banks vs rest of country				
	(1)	(2)	(3)	(4)
Post × *Treatment*	0.004	0.004	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)
N	15,165	15,165	14,918	14,918
Adj. R^2	0.75	0.75	0.73	0.73
State-level controls	–	✓	✓	✓
County-level controls	–	–	✓	✓
Bank-level controls	–	–	–	✓

Consequences of Bank Risk Taking

1. We show that the risky loans increased the probability of failure
   - Also: more rapid asset growth (>20%) and reliance on dodgy types of capital

2. Higher failure costs in 9th district
   1. **Poorer quality assets** $\Rightarrow$ fewer assets passed to acquirers, more bad assets passed to FSLIC
   2. Less oversight should lead to **delays in resolution**

$$Y_{i,t} = \alpha + \beta \cdot 9\mathit{th\ District}_i + \boldsymbol{\Phi' X_{i,t-1}} + \eta_t + \varepsilon_{i,t}$$

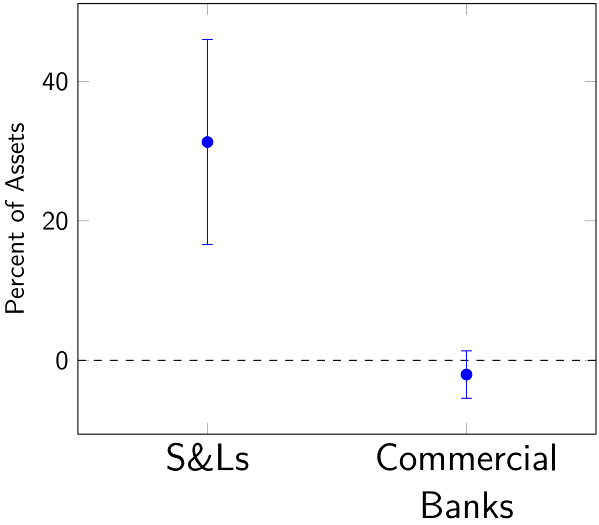
Resolution Costs by FHLB District (1983-1990)

Panel A: Weighted Average Costs of Failure by FHLB District and Charter Type

Savings & Loans			Commercial Banks		
FHLB District	Rank	Resolution Costs/Assets (%)	FHLB District	Rank	Resolution Costs/Assets (%)
Dallas	**1**	**80.7**	Cincinnati	1	25.9
Topeka	2	35.7	Topeka	2	24.6
Des Moines	3	21.8	New York	3	20.7
Atlanta	4	19.8	Seattle	4	20.7
New York	5	18.4	Chicago	5	19.7
Chicago	6	18.1	San Francisco	6	17.3
Boston	7	15.8	**Dallas**	**7**	**15.5**
Cincinnati	8	13.5	Des Moines	8	13.7
Indianapolis	9	12.6	Indianapolis	9	13.6
Seattle	10	10.4	Pittsburgh	10	12.4
Pittsburgh	11	9.9	Boston	11	7.9
San Francisco	12	9.3	Atlanta	12	5.9

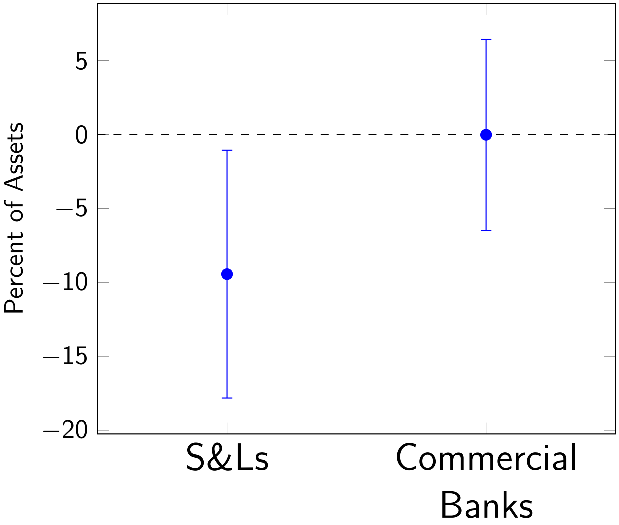
State-level ranks for 9th District S&Ls (commercial banks): AR:1(6); TX:2(25); NM:3(9); LA:4(10); MS:12(34)

9th District Resolution Costs were Greater ('83-'90)



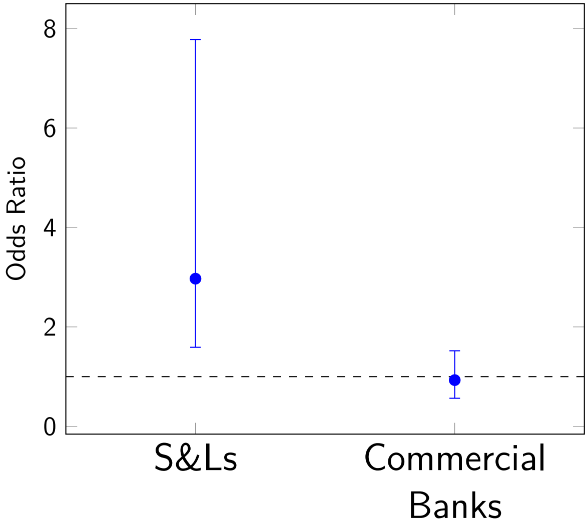
- Each failure cost taxpayers approx 30pp more (as a share of failed banks' assets)

9th District Assets Passed to Acquirer were Lower ('83-'90)



- Each failed bank passed 10% less of its balance sheet to the acquirer

9th District Pr(Net Worth< 3%) 1yr Before Failure was Higher ('83-'90)



- The odds of observing a *regulatorily* insolvent thrift 1 year before closure are 3 times larger in the 9th district

Conclusion

- Supervision (narrowly defined) has an important effect on bank behavior and can help limit the broader economic costs of financial sector turmoil
    1. Thrifts invested more heavily in risky loans, and grew more quickly while using substandard capital
    2. Risk taking activity ceased upon arrival of additional supervisors/examiners
    3. Higher incidence and cost of failures resulted
- Allocation of sufficient supervisory resources is crucial for optimal banking policy and financial stability